

REMARKS

Claims 1-16 are pending in the above-referenced patent application. Claims 1, 3, 6-10 and 16 were rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0027610 to Jiang et al. ("Jiang"). Claim 14 was rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang. Claims 2, 4-5, 11-13 and 15 were deemed allowable if rewritten in independent form including limitations of base claims and all intervening claims. Applicant wishes to thank the Examiner for detailing the allowable claims.

Information Disclosure Statement

Applicant wishes to thank the Examiner for his comments regarding the listing of references in the specification as being improper. Applicant respectfully points out that the references listed in the specification were submitted in an Information Disclosure Statement on December 10, 2001. A copy of the Information Disclosure Statement, along with the references and postcard acknowledged by the USPTO, is respectfully re-submitted herewith in case the original IDS was misplaced by the PTO.

Rejection of Claims 1, 3, 6-10 and 16 under 35 U.S.C. 102(e)

Rejection of Claims 1, 3, 6-10 and 16 under 35 U.S.C. 102(e) as being anticipated by Jiang is respectfully traversed because, for at least the following reasons, Jiang does not disclose all of the claimed limitations.

As per Claim 1, despite the Patent Office's interpretation of Jiang's motion detector 109, Jiang does not disclose: "comparing mutually corresponding fields and defining a point-wise non-recursive motion decision parameter indicating motion at a given point between a previous field and a next field in the video sequence; computing a recursive motion decision parameter by combining the non-recursive motion decision parameter with a motion decision parameter of at least one associated previous field," as required by Claim 1.

The Patent Office interprets the motion detector 109 and paragraphs 28-34 of Jiang as disclosing the claimed limitation. Jiang does not disclose recursive and non-recursive computations as claimed. Further, on page 2, paragraph 27, Jiang describes the motion detector 109 in detecting motion of a missing pixel as follows:

"Motion detector 109 actually filters the pixel luminance value differences from pixel difference unit 107 to remove aliases occurring under motion conditions. Moreover, it should be noted that all the pixel luminance value differences noted above might not be used in determining the motion of the missing pixel. *The motion metric Δ at a missing pixel may be defined by employing some combination of the obtained pixel luminance value differences, for example, by $\Delta = \max(\Delta_c, \Delta_a)$. Other combinations of the pixel luminance value differences may also be used to obtain the motion metric at the missing pixel, for example, $\Delta = \max(\Delta_c, \min(\Delta_n, \Delta_s))$, is employed in motion detector 109 in this implementation. Note that the use of $\min(\Delta_n, \Delta_s)$ reduces the spreading of spurious motion in a vertical direction of the image. It is also important to note that our implementation is significantly simplified because *the motion values are computed directly from the pixel luminance value differences employing the minimum and maximum value choices.*" (emphasis added).*

The above passage in Jiang is directed to calculating the motion metrics for a missing pixel. This is done by first obtaining pixel luminance value differences such as Δ_c , Δ_a and then

obtaining a motion metric Δ for the missing pixel from a combination of the luminance value differences. Then, in paragraphs 28-34, Jiang describes different ways of combining the luminance value difference to obtain the motion metric Δ for the missing pixel. By contrast to the claimed invention, in Jiang for computing the motion metric Δ for a missing pixel, the motion metrics of previous fields are not used. In other words, Jiang does not disclose computing a recursive motion decision parameter by combining the motion decision parameter Δ of the missing pixel with a motion decision parameter of at least one associated previous field, as required by Claim 1. In Jiang, for computing the motion metric Δ for the missing pixel, the *luminance value differences* (e.g., Δ_c , Δ_a , Δ_n , Δ_s) are used, **not** the *motion metrics* of any previous fields. For at least these reasons, rejection of Claim 1 should be withdrawn.

Claim 3 adds further limitations to Claim 1, not disclosed by Jiang, and should be allowed for at least the reasons provided in relation to Claim 1.

Claim 9 was rejected for similar reasons as Claim 1, and therefore should be allowed for at least the reasons provided in relation to Claim 1.

Claim 10 adds further limitations to Claim 9, not disclosed by Jiang, and should be allowed for at least the reasons provided in relation to Claim 9.

Claim 6 includes limitations of Claim 1, and further limitations, not disclosed by Jiang

and is therefore allowable for at least the reasons provided in relation to Claim 1.

As per Claim 7, despite the Patent Office's interpretation, Jiang, paragraph 42, does not disclose: "varying the motion decision value between 0 and 1 as a function of an estimate of the degree of motion at the given location and, upon estimating a high degree of motion, heavily weighting the output signal towards the spatially interpolated signal and, upon estimating a low degree of motion, heavily weighting the output signal towards the temporally interpolated signal," as required by Claim 7. Jiang shows the motion metric values varying between 0 and 8, not between 0 and 1, as claimed. Further, the blending factor in Jiang is not the same as the motion decision value as claimed. In addition, as claimed, upon estimating a high degree of motion (e.g., motion decision close to 1), the output signal is heavily weighted towards the spatially interpolated signal, and upon estimating a low degree of motion (e.g., motion decision close to 0), the output signal is heavily weighted towards the temporally interpolated signal. By contrast, the blending factor in Jiang has the values of 0 for motion metric values 0 and 1. For at least these reasons, rejection of Claim 7 should be withdrawn. Further, in paragraph 43, Jiang states that any motion metric value of less than 4 yields a blending factor of 0 and any motion metric value of 8 or more yields a blending factor 1. For at least these reasons, rejection of Claim 8 should be withdrawn.

Claim 16 includes limitations of Claim 9, and further limitations, not disclosed by Jiang and is therefore allowable for at least the reasons provided in relation to Claim 9.

Rejection of Claim 14 under 35 U.S.C. 103(a)

Rejection of Claim 14 under 35 U.S.C. 103(a) as being unpatenable over Jiang is respectfully traversed because not all of the limitations of the claim are disclosed or suggested by Jiang.

As per Claim 14, as the Patent Office also states, Jiang does not disclose a low-pass filter connected to the output of the recursive motion detection unit to for low-pass filtering the recursive motion detection parameter, as required by Claim 14. Jiang does not disclose all of the limitations of Claim 9 on which Claim 14 depends. Clearly then, Jiang cannot, and does not disclose, low-pass filtering the recursive motion detection parameter before output. There is no such component in Jiang. The Patent Office has not provided a reference that teaches such a limitation, and summarily deciding that the claimed limitation is obvious, and a matter of design choice, without meeting its burden. No prima facie case of obviousness has been established. Jiang does not suggest the motivation to modify it as proposed. Jiang is individually complete and functionally independent for its limited specific purposes and there would be no reason to make the modification proposed by the Patent Office. Therefore, because Jiang does not suggest the modification proposed by the Patent Office the modifications is improper. The LPF 108 in Jiang has nothing to do with low-pass filtering the recursive motion detection parameter prior to output, as claimed. Further, it is respectfully submitted that the Patent Office is improperly using “hindsight” and the teachings of Applicant’s own claimed invention in order to modify Jiang to

render Applicants' claims obvious. For at least these reasons, rejection of Claim 14 should be withdrawn.

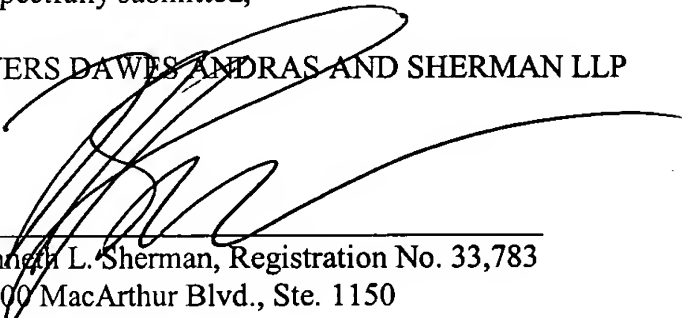
Conclusion

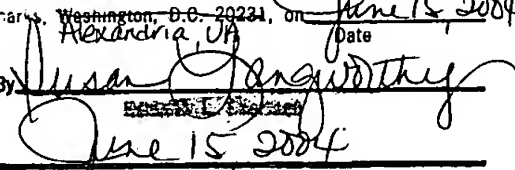
For these and other reasons, it is respectfully submitted that the rejection of the rejected claims should be withdrawn, and all of the claims be allowed. Accordingly, reexamination, reconsideration and allowance of all the claims are respectfully requested.

The Commissioner is hereby authorized to charge any payment, or credit any overpayment, to Deposit Account No. 01-1960, in connection with this reply.

Respectfully submitted,

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